Natural Heritage & Endangered Species Program
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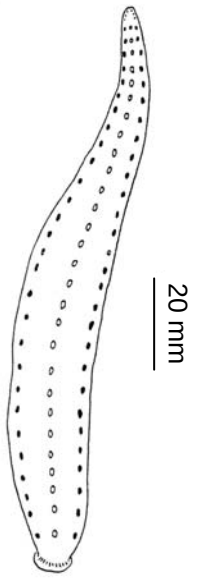
New England Medicinal Leech

Macrobdella sestertia

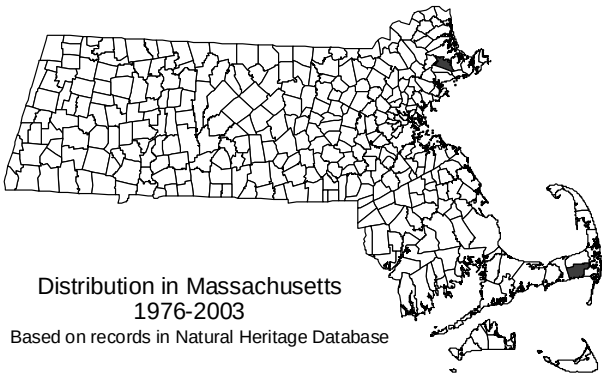
State Status: **Special Concern**
Federal Status: None



Smith, D. G. 1981. Selected freshwater invertebrates proposed for special concern status in Massachusetts. Mass. Dept. of Env. Qual. Engineering, Div. of Wat. Pollut. Control. Westborough, MA.

Description: Though unsavory to some, the New England Medicinal Leech is one of the rarest species of leech in North America. It is also one of the largest leeches found in New England, reaching a length of 150 mm, or greater than 5 inches. It is flat and bright green in color, with 20 or more reddish orange spots along its dorsal surface (Sawyer 1986). This species is a sanguivorous (bloodsucking) leech, having a medium to large mouth with 38 to 48 teeth on each of its toothed jaws. Five pairs of eyes form a distinctive arch along the front end of the animal. Identification of this species is difficult because it requires knowledge of specific anatomical features of leeches.

Habitat: The New England Medicinal Leech inhabits shallow waters along the shoreline. Early specimens were found in the detritus of a vegetated area along the shores of a coastal kettlehole that was characterized by dark, naturally tea-colored waters. However, it has since been recorded from a pristine, clear, low-nutrient lake in inland Maine (Smith and Hanlon 1997).



Distribution in Massachusetts
1976-2003
Based on records in Natural Heritage Database

Life History/Behavior: The life history and behavior of the New England Medicinal Leech is essentially unknown. It is presumed to be similar to the American Medicinal Leech (*M. decora*), a closely related, more common, and widespread sanguivorous leech. Peak activity periods of this similar leech are during the spring and early summer. It is found in warm, protected shallow areas of ponds with little wave action. It stays concealed during the day in dark places provided by vegetation, stones, and debris, and is most active at night (Moore 1923). It moves along the pond bottom with movements like that of inchworms, and can swim using up-and-down and side-to-side movements of its body. As a sanguivorous leech, it attaches to vertebrates that enter the water.

Threats: The New England Medicinal Leech is found in natural ponds with abundant bordering vegetation, and so is likely sensitive to shoreline changes and declines in water quality. The filling of ponds or the seeping of sewage into vegetated ponds and streams both pose potential threats to this species.

Range: Until the early 1990s it was thought that the New England Medicinal Leech was endemic to the coastal freshwaters of Massachusetts. Since its discovery in Maine in 1993, the distribution of this species remains unclear, but is likely very restricted. It can probably be found in freshwater habitats of the coastal regions of New England associated with past glacial activity during the Pleistocene Epoch (Smith 1977).

Population Status in Massachusetts: Little is known regarding the status of the New England Medicinal Leech in Massachusetts. Only three individuals have been collected from the state since Whitman described the species in 1886, bringing the total number of discoveries in the state to four. Two specimens were collected from a lake in Essex County and one from a river in the town of Harwich. The only information available regarding those specimens described by Whitman is that they were collected from the Massachusetts coastal plain. Only one of those specimens was saved and it can be found in Harvard University's Museum of Natural History (Smith 1977). Recently, several attempts were made to find the species again in Essex County but were unsuccessful (M. Siddall, personal communication 2003). This rarely encountered leech is listed under the Massachusetts Endangered Species Act as a Species of Special Concern. All listed species are protected from killing, collecting, possessing, or sale and from activities that would destroy habitat and thus directly or indirectly cause mortality or disrupt critical behaviors. In addition, listed animals are specifically protected from activities that disrupt nesting, breeding, feeding, or migration.

Similar Species: The New England Medicinal Leech is closely related to the American Medicinal Leech (*Macrobdella decora*), a common and widespread species. These two species are quite similar in color except that the underside of the New England Medicinal Leech is a darker orange-red. Identification of these two species is possible based on the number of teeth and on the external reproductive area. The adult American Medicinal Leech has 65 teeth on each of its toothed jaws and can reach more than 9 inches in length. Adults of the New England Medicinal Leech have 38 to 48 teeth and can reach approximately 5 inches in length. In addition, the New England Medicinal Leech has 24 copulatory glands on its ventral surface, while the American Medicinal Leech has only four glands (Smith 1977). An identification key sufficiently illustrates the differences between these two species (Smith and Hanlon 1997).

References:

Moore, J. P. 1923. The control of bloodsucking leeches, with an account of the leeches of Palisades Interstate Park. Roosevelt Wild Life Bulletin 2: 1-53.

Sawyer, R. T. 1986. Leech biology and behavior Volume II. Feeding biology, ecology, and systematics. Oxford University Press, Oxford, England. pp 419-793.

Smith, D. G. 1977. The rediscovery of *Macrobdella sestertia* Whitman (Hirudinea: Hirudinidae). J. Parasitol. 63: 759-760.

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Smith, D. G. and S. Hanlon. 1997. *Macrobdella sestertia* (Hirudinea: Hirudinidae) in Maine and a key to the Hirudiniform leeches of Maine. Northeastern Naturalist 4 (4): 231:236.